Question 1. (33%)  
(A) Please use the following data (33, 78, 11, 48, 20, 55, 33, 99) to build a binary search tree (6%). Based on the binary search tree, please describe the procedure of in-order (6%) traversal and show the final result.  
(B) Based on the following data: 3, 2, 6, 4, 1, 5, please describe the processes and their results by using the Selection Sort (7%).  
(C) Please describe the Depth-first Search (DFS) (7%) and Breadth-first Search (BFS) (7%) of Graph Traversal according to the graph shown below and show their final results.

![Graph Diagram](image_url)

Question 2. (33%)  
You are given a matrix \( A = \begin{bmatrix} x_{11} & x_{12} & x_{13} & x_{14} \\ x_{21} & x_{22} & x_{23} & x_{24} \\ x_{31} & x_{32} & x_{33} & x_{34} \\ x_{41} & x_{42} & x_{43} & x_{44} \end{bmatrix} \) for the following questions.  
(A) With \( \{ x_{11} = 1, x_{12} = 2, x_{21} = 3, x_{22} = 0, x_{24} = 6, x_{33} = 1, x_{32} = 5, x_{44} = 0, x_{43} = 7 \} \) and otherwise \( x_{ij} = \infty \) (infinity) for \( A \), what structure in graph is represented by \( A \)? Explain your answer in detail (17%).  
(B) With \( \{ x_{ij} = 0 \text{ if } i = j \} \) and \( \{ x_{ij} = 1 \text{ if } i \neq j \} \) for \( A \), what structure in graph is represented by \( A \)? Explain your answer in detail (15%).

Question 3. (24%)  
Let \( T \) be a 2-3 tree of height \( h \). What is the possible number of leaves?  
(A) What is the possible number of leaves? (4 %)  
(B) Prove your answer to (a). (10 %)

Question 4. (20%)  
There are \( n \) integer elements in an array \( A \). Write a non-recursive program in C language to find the \( k^{\text{th}} \) small element in the array \( A \). You are not allowed to sort the array \( A \). (20 %)